WHAT IS CLAIMED IS:

1. A data transmission controlling method for controlling transmission of data from data transmitting means to data receiving means over communication channels, said data transmission controlling method comprising the steps of:

transmitting data encrypted by said data transmitting means to said data receiving means over a first communication channel provided for data transmission from said data transmitting means to said data receiving means; and

transmitting to said data receiving means restrictive data transmission control information for causing the encrypted data to be received solely by specific data receiving means at least over a second communication channel which, having a smaller capacity of data transmission than said first communication channel, is also used for data transmission from said data receiving means to said data transmitting means.

2. A data transmission controlling method according to claim 1, wherein said second communication channel is a communication channel permitting bidirectional communication between said data transmitting means and said data receiving means.

3. A data transmission controlling method according to claim 1, wherein said data transmitting means performs data encryption using an encryption key and wherein said encrypted data from said data transmitting means are decrypted by said data receiving means utilizing a decryption key identical to said encryption key used in the data encryption.

4. A data transmission controlling method according to claim 3, wherein said encryption key and said decryption key are session keys for encrypting and decrypting information and data.

5. A data transmission controlling method according to claim 4, wherein said session keys are updated at predetermined intervals.

6. A data transmission controlling method according to claim 4, wherein said data transmitting means and said data receiving means have a master key specific to said data receiving means;

wherein said data transmitting means encrypts said session keys using said master key and transmits the encrypted session keys to said data receiving means over either said first communication channel or said second communication channel; and

wherein said data receiving means decrypts said

encrypted session keys received using said master key.

7. A data transmission controlling method according to claim 6, wherein said data transmitting means possesses said session keys corresponding to all data receiving means authorized to receive specific information and data; and

wherein said data transmitting means transmits in advance said session keys to said data receiving means authorized to receive specific information and data.

8. A data transmission controlling method according to claim 1, wherein said first communication channel is a satellite link permitting unidirectional communication from said data transmitting means to said data receiving means; and

wherein said second communication channel is a communication channel permitting bidirectional communication between said data transmitting means and said data receiving means.

9. A data transmission controlling method according to claim 1, wherein said data receiving means is constituted as an IP router.

10. A data transmission controlling method according to claim 1, wherein said data receiving means is constituted as a bridge.

11. A data transmission system comprising:

data transmitting means for encrypting data and transmitting the encrypted data;

data receiving means for receiving said encrypted data from said data transmitting means;

a first communication channel used for data transmission from said data transmitting means to said data receiving means; and

a second communication channel which is also used for data transmission from data receiving means to said data transmitting means and which has a smaller capacity of data transmission than said first communication channel;

wherein said first communication channel is used to transmit said encrypted data; and

wherein at least said second communication channel is used to transmit restrictive data transmission control information for causing said encrypted data to be received solely by specific data receiving means.

12. A data transmission system according to claim 11, wherein said data transmitting means performs data encryption using an encryption key and wherein said encrypted data from said data transmitting means are decrypted by said data receiving means utilizing a

decryption key identical to said encryption key used in the data encryption.

13. A data transmission system according to claim 12, wherein said encryption key and said decryption key are session keys for encrypting and decrypting information and data.

14. A data transmission system according to claim 13, wherein said session keys are updated at predetermined intervals.

15. A data transmission system according to claim 13, wherein said data transmitting means and said data receiving means have a master key specific to said data receiving means;

wherein said data transmitting means encrypts said session keys using said master key and transmits the encrypted session keys to said data receiving means over either said first communication channel or said second communication channel; and

wherein said data receiving means decrypts said encrypted session keys received using said master key.

16. A data transmission system according to claim 15, wherein said data transmitting means possesses said session keys corresponding to all data receiving means authorized to receive specific information and data; and

wherein said data transmitting means transmits in advance said session keys to said data receiving means authorized to receive specific information and data.

17. A data transmission system according to claim 11, wherein said first communication channel is a satellite link permitting unidirectional communication from said data transmitting means to said data receiving means.

18. A data transmission system according to claim 11, wherein said data receiving means is constituted as an IP router.

19. A data transmission system according to claim 11, wherein said data receiving means is constituted as a bridge.

20. A data transmission controlling method for controlling transmission of data from data transmitting means to data receiving means over communication channels and for causing said data transmitting means to encrypt data and transmit the encrypted data to said data receiving means over said communication channels, said data transmission controlling method comprising the steps of:

encapsulating the data to be transmitted in multiplexed fashion in accordance with a plurality of

protocols; and

encrypting at least one of data capsules resulting from the encapsulation.

21. A data transmission controlling method according to claim 20, wherein the data encapsulating step includes:

a first encapsulating step for encapsulating the data to be transmitted to said data receiving means in accordance with a first protocol; and

a second encapsulating step for further encapsulating the encapsulated data from said first encapsulating step in accordance with a second protocol;

wherein said first encapsulating step supplements a real data part including said data to be transmitted to said data receiving means with an additional information part associated with said real data part, said first encapsulating step further encrypting said real data part.

22. A data transmission controlling method according to claim 21, wherein said additional information part includes destination address information identifying the data receiving means authorized to receive data included in said real data part.

23. A data transmission controlling method according to claim 22, wherein said destination address

information is either individual or group destination address information.

24. A data transmission controlling method according to claim 22, wherein said data transmitting means possesses session keys corresponding to said destination address information, said session keys being used by said data transmitting means to encrypt information and data and by said receiving means to decrypt the encrypted information and data received; and

wherein said data transmitting means transmits in advance said session keys to the data receiving means authorized to receive the transmitted information and data in accordance with said destination address information.

25. A data transmission controlling method according to claim 24, wherein said session keys are updated at predetermined intervals.

26. A data transmission controlling method according to claim 24, wherein said session keys are transmitted over a communication channel permitting either unidirectional communication from said data transmitting means to said data receiving means or bidirectional communication therebetween.

27. A data transmission controlling method

according to claim 21, wherein said first encapsulating step uniquely determines how said destination address information attached to said real data part is stored into said additional information part, said first encapsulating step further encrypting said real data part using a master key specific to the data receiving means corresponding to said destination address information.

28. A data transmission controlling method according to claim 22, wherein said additional information part provides a 48-bit space in which to accommodate said destination address information.

29. A data transmission controlling method according to claim 21, wherein said first encapsulating step encapsulates the data to be transmitted to said data receiving means in accordance with either the Internet protocol or the Ethernet protocol.

30. A data transmission controlling method according to claim 20, wherein said data receiving means is constituted as an IP router.

31. A data transmission controlling method according to claim 20, wherein said data receiving means is constituted as a bridge.

32. A data transmission controlling method for controlling transmission of data from data transmitting

means to data receiving means over communication channels and for causing said data transmitting means to encrypt data and transmit the encrypted data to said data receiving means over said communication channels, said data transmission controlling method comprising the steps of:

encrypting data using an encryption key;

supplementing the encrypted data with encryption key information about said encryption key;

transmitting said encrypted data together with said encryption key information from said data transmitting means to said data receiving means; and

decrypting said encrypted data using one of a plurality of decryption keys which allow said data receiving means to decrypt said encrypted data and which are updated frequently, said one of the decryption keys being selected in accordance with said encryption key information attached to said encrypted data.

33. A data transmission controlling method according to claim 32, wherein said plurality of decryption keys include a decryption key which is currently usable for decrypting said encrypted data received, and a decryption key which is to be used next to decrypt said encrypted data received; and

wherein said data decrypting step selects the currently usable decryption key based on said encryption key information.

34. A data transmission controlling method according to claim 33, wherein said encryption key and said decryption keys are session keys for encrypting information and data.

35. A data transmission controlling method according to claim 34, wherein said session keys are updated at predetermined intervals.

36. A data transmission controlling method according to claim 32, wherein said data receiving means is constituted as an IP router.

37. A data transmission controlling method according to claim 32, wherein said data receiving means is constituted as a bridge.